Method and Apparatus for Digital Detection of Electronic Markers Using Frequency Adaptation

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ABSTRACT

An electronic marker locator with a digital architecture for providing accurate and consistent estimation of the signal strength is presented. The marker locator includes a Digital Phase-Locked Loop (DPLL) structure. The electronic marker locator transmits known and adjustable frequency bursts corresponding to the markers to be located while synchronously capturing the signals returned from the markers. Because of the convergence properties of the DPLL, very consistent measurements of the reflected marker signal field strength are possible, resulting in both an improvement of maximum detection depth and depth accuracy. Further, the analog front-end hardware can be reduced, offering wider resistance to component tolerances, lower calibration and test times, and flexible frequency selectivity.